REMARKS

In the Office Action, the Examiner requested that replacement drawings be submitted by Applicants. Formal drawings are submitted herein.

STATUS OF THE CLAIMS

Claims 1-13 are pending in the present application. Claims that are the subject of the present Response – claims 1-13 – are set forth in the attached "Claims Appendix."

In the Office Action, claims 1, 2, and 5-13 were rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Harrison (U.S. Patent No. 6,154,485). Claims 3-4 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Harrison in view of Forssen, et al (U.S. Patent No. 6,173,014) The Examiner's rejections are respectfully traversed.

SUMMARY OF CLAIMED SUBJECT MATTER

Claim 1 sets forth a method of transmitting signals from at least two antennae. The claimed method includes the steps determining at least one correlation coefficient between received signals from the at least two antennae and, in response to the at least one determined correlation coefficient, selecting at least one of orthogonal coding and beamforming for transmitting signals using the at least two antennae. Figure 1 depicts one exemplary embodiment of a system 8 that may implement the claimed method. The system 8 includes two transmit antennae 24, 26. A space-time encoder 12 may be used to compute correlation coefficients that can be used to control relative amounts of beamforming and orthogonal coding. See Patent Application, page 6, line 18 – page 12, line 14 and Figures 1-2.

ARGUMENT

A. Claims 1-2 and 5-13 are not anticipated by Harrison.

Harrison is concerned with receiving signals using combined orthogonal transmit diversity and adaptive array techniques. Harrison describes a coefficient α that may be used to calculate adaptive array filter weights 90 and 92, which may be used by an adaptive array processor 76 to allow a base transmitter to smoothly transition between an orthogonal transmit diversity mode and an adaptive array mode. This smooth transition may allow the base transmitter to smoothly disable the adaptive array mode in proportion to the degradation of the quality of feedback data from a receiver. See Harrison, col. 8, ll. 23-35.

In the FINAL Office Action, the Examiner alleges that the adaptive array filter weights 90 and 92 are correlation coefficients. Applicants respectfully disagree. The adaptive array filter weights 90 and 92 described in Harrison are computed from the coefficient α, which may be selected arbitrarily. For example, when the value of the coefficient α is equal to zero, the adaptive array weights 90 and 92 are set equal to 1 so that the transmitter operates in an orthogonal transmit diversity mode. If the coefficient α is set to the reciprocal of the square root of 2, the base transmitter operates in operates in an adaptive radio mode, and if the coefficient α is set to a value between zero and the reciprocal of the square root of 2, the base transmitter operates in a mixed mode. See Harrison, col. 8, ll. 4-35.

However, neither the adaptive array weights nor the coefficient α described by Harrison is a correlation coefficient. A correlation coefficient is a well-known statistical quantity that represents the degree to which distributions of two or more quantities are linearly associated. For example, a correlation coefficient may indicate the quality of a least squares fit to a data sample.

Thus, Harrison does not describe or suggest determining at least one correlation coefficient between received signals from at least two antennae, as set forth in independent claim 1.

For at least this reason, Applicants respectfully submit that claim 1 and all claims depending therefrom are not anticipated by Harrison and request that the Examiner's rejections of claims 1-2 and 5-13 under 35 U.S.C. 102(e) be withdrawn.

B. Claims 3-4 are not obvious over Harrison in view of Forssen.

To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. As discussed above, Harrison fails to teach or suggest determining at least one correlation coefficient between received signals from at least two antennae, as set forth in independent claim 1. The Examiner admits that Harrison also fails to teach or suggest determining at least one phase correlation coefficient, and so the Examiner relies upon Forssen to teach the use of amplitude and phase information to create a beam. However, Forssen fails to remedy the fundamental deficiencies of Harrison discussed above with respect to claim 1. Furthermore, the cited references are both completely silent with regard to correlation coefficients and therefore fail to provide any suggestion or motivation to modify the prior art to arrive at Applicants' claimed invention.

For at least the aforementioned reasons, Applicants respectfully submit that the present invention is not obvious over Harrison or Forssen, either alone or in combination. Applicants respectfully request that the Examiner's rejections of claims 3-4 under 35 U.S.C. 103(a) be withdrawn.

CONCLUSION

For the aforementioned reasons, it is respectfully submitted that all claims pending in the present application are in condition for allowance. The Examiner is invited to contact the

undersigned at (713) 934-4052 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,

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